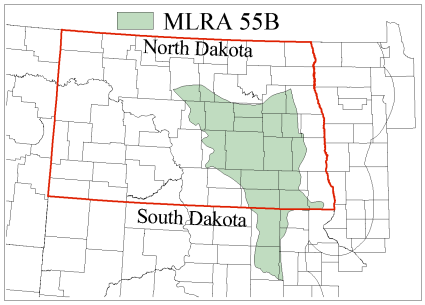
FORAGE SUITABILITY GROUP
SALINE

FSG No.: G055BY895ND

Major Land Resource Area: 55B - Central Black Glaciated Plains



Physiographic Features

Most of these soils are found on level and nearly level glacial lake plains, flood plains, and terraces.

	Minimum	Maximum
Elevation (feet):	980	1970
Slope (percent):	0	9
Flooding:		
Frequency:	None	Frequent
Duration:	None	Long
Ponding:		
Depth (inches):		
Frequency:	None	None
Duration:	None	None
Runoff Class:	Very low	Medium

Climatic Features

This group occurs in a mid-continental climate characterized by wide seasonal temperature and precipitation fluctuations and extremes.

Annual precipitation varies widely from year to year in MLRA 55B. Average annual precipitation for all climate stations listed below is about 19 inches. About 78 percent of that occurs during the months of April through September. On average, there are about 28 days with greater than .1 inches of precipitation during the same time frame. Precipitation is lowest in the northwest and highest in the south in the MLRA.

Average annual snowfall ranges from 25 inches at Forman, North Dakota (ND) to 37 inches at Columbia, South Dakota (SD). Snow cover at depths greater than 1 inch range from 32 days at Petersburg, ND, to 98 days at Gackle, ND.

Average July temperatures are about 71^0F and average January temperatures are about 7^0F. Recorded temperature extremes in the MLRA during the years 1961 to 1990 are a low of -39 at both Petersburg and Oakes in ND, and a high of 114 recorded at Mellette, SD. The MLRA lies in USDA Plant Hardiness Zones 3b and 4a.

At Aberdeen, SD, the average annual wind speeds are about 11 mph. The highest wind speeds occur during March through May, but average monthly wind speeds do not vary significantly throughout the year. It is cloudy about 163 days a year. Average morning relative humidity in June is about 85 percent and average afternoon humidity is 60 percent.

The climate data listed in the tables below represent high and low ranges and averages for the climate stations and dates listed. For additional climate data access the National Water and Climate Center at http://www.wcc.nrcs.usda.gov.

	From	To
Freeze-free period (28 deg)(days):	115	137
(9 years in 10 at least)		
Last Killing Freeze in Spring (28 deg):	May 28	May 14
(1 year in 10 later than)		
Last Frost in Spring (32 deg):	Jun 06	May 23
(1 year in 10 later than)		
First Frost in Fall (32 deg):	Aug 29	Sep 10
(1 year in 10 earlier than)		
First Killing Freeze in Fall (28 deg):	Sep 08	Sep 21
(1 year in 10 earlier than)		
Length of Growing Season (32 deg)(days):	92	116
(9 years in 10 at least)		

	From	To
Growing Degree Days (40 deg):	3389	4402
Growing Degree Days (50 deg):	1852	2558
Annual Minimum Temperature:	-35	-25
Mean annual precipitation (inches):	16	21

Monthly precipitation (inches) and temperature (F):

2 years in 10:	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Precip. Less Than	0.24	0.13	0.30	0.63	1.08	1.72	1.30	0.94	0.76	0.23	0.18	0.24
Precip. More Than	0.60	0.79	2.10	3.58	4.09	5.07	3.66	4.02	3.07	1.92	1.14	0.74
Monthly Average:	0.50	0.43	1.02	1.89	2.41	3.39	2.65	2.27	1.94	1.18	0.57	0.46
Temp. Min.	-8.2	-2.7	11.6	28.1	39.9	50.0	54.0	51.2	40.8	30.3	15.0	-2.0
Temp. Max.	21.8	28.2	41.0	58.2	70.9	80.0	87.3	85.5	74.0	61.5	42.1	26.2
Temp. Avg.	7.4	13.6	26.9	42.8	55.7	65.4	71.0	68.7	57.6	45.8	28.3	12.9

Climate Station	Location	From	To
ND2482	Edgeley, ND	1961	1990
ND2605	Oaks, ND	1961	1987
ND2605	Ellendale, ND	1961	1987
ND2949	Fessenden, ND	1961	1990
ND3117	Forman, ND	1961	1990
ND3287	Fullerton, ND	1961	1990
ND3309	Gackle, ND	1961	1990
ND4343	Hurdsfield, ND	1961	1990
ND4413	Jamestown, ND	1961	1990
ND4937	La Moure, ND	1961	1990
ND5764	McVille, ND	1961	1990
ND7027	Petersburg, ND	1961	1990
ND8937	Valley City, ND	1961	1990
SD0020	Aberdeen, SD	1961	1990
SD1873	Columbia, SD	1961	1990
SD5456	Mellette, SD	1961	1990

Soil Interpretations

This group consists mostly of somewhat poorly and poorly drained soils with elevated salinity.

Drainage Class:	Well drained	To	Poorly drained
Permeability Class: (0 - 40 inches)	Moderately rapid	To	Slow
Frost Action Class:	Moderate	To	High

	Minimum	Maximum
Depth:	72	0
Surface Fragments >3" (% Cover):	0	3
Organic Matter (percent): (surface layer)	1.0	9.0
Electrical Conductivity (mmhos/cm): (0 - 24 inches)	4	16
Sodium Absorption Ratio: (0 - 12 inches)	0	10
Soil Reaction (1:1) Water (pH): (0 - 12 inches)	6.1	9
Available Water Capacity (inches): (0 - 60 inches)	3	
Calcium Carbonate Equivalent (percent): (0 - 12 inches)	0	28

Adapted Species List

The following forage species are considered adapted to grow on the soils in this group. Additional information concerning plant characteristics of a number of the listed species as well as individual cultivars of many of those species can be accessed on the web at http://plants.usda.gov/.

Cool Season Grasses	
Altai wildrye	F
Beardless wildrye	G
Canada wildrye	F
Creeping foxtail	F
Newhy hybrid wheatgrass	G
Russian wildrye	F
Slender wheatgrass	G
Tall wheatgrass	G
Western wheatgrass	G

Warm Season Grasses	
Alkali sacaton	F
Prairie cordgrass	F
Legumes	
Alsike clover	F
Birdsfoot trefoil	F
Strawberry clover	G
Sweetclover	F

G - Good adaptation for forage production on this group of soils in this MLRA
F - Fair adaptation but will not produce at its highest potential

Production Estimates

Production estimates listed here should only be used for making general management recommendations. Onsite production information should always be used for making detailed planning and management recommendations.

The high forage production estimates listed below are based on dense, vigorous stands of climatically adapted, superior performing cultivars. They are properly fertilized for high yields and pest infestations are kept below economic thresholds. Mechanical harvests are managed to maintain stand life by cutting at appropriate stages of maturity and harvest intervals. If grazed, optimum beginning and ending grazing heights are adhered to. Adequate time is allowed for plant recovery before entering winter dormancy under both uses.

The production estimates listed below represent total annual above ground plant production on an air-dry-matter basis. Estimates of hay and grazing yields can be calculated from these numbers by multiplying them by a harvest efficiency. A 70 percent harvest efficiency is commonly used when converting to hay yields. Pasture harvest efficiency is highly dependent on the grazing management system applied, ranging from 25 percent to 50 percent.

Forage Crop	**Management Intensity**	
	High	**Low**
	(lbs/ac)	**(lbs/ac)**
Tall wheatgrass	4900	2600
Western wheatgrass	3400	1700

Forage Growth Curves

Growth curves estimate the seasonal distribution of growth of the various forage crops. They indicate when the forages may be available for grazing or mechanical harvest.

Growth Curve Number: ND0002
Growth Curve Name: Cool season grass
Growth Curve Description: Cool season grass

Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	40	35	10	5	5	0	0	0

Growth Curve Number: ND0003
Growth Curve Name: Warm season grass
Growth Curve Description: Warm season grass

Percent Production by Month

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	0	10	40	35	15	0	0	0	0

Soil Limitations

These soils have severe limitations to the production of climatically adapted forage species. Species selection and productivity are severely limited by the high salinity levels. Also, these soils are somewhat poorly and poorly drained and will experience periods when trafficability will be difficult or impossible. These soils are subject to compaction if grazed or machinery is operated on them when wet. Drainage also limits species selection.

Management Interpretations

When establishing new stands or renovating stands select species that are tolerant of elevated salinity levels and that are tolerant of somewhat poorly and poorly drained soils. Exclude livestock and machinery during extended periods of soil wetness to reduce soil compaction.

Pasture and hayland can include considerations for wildlife. Delaying grazing on portions of the pasture or rotating pastures will allow nest initiation of grassland nesting birds or species of concern. Nest initiation of most grassland nesting birds occurs from April 15 to June 1. Delaying haying until after July 15 allows for most species to fledge their young. Consider planting species with later maturity to allow for harvesting after nests have fledged. Avoid mowing around the field. Mow back and forth or from the inside to the outside of the field. Consider using flushing bars on swathers and mowers.

FSG Documentation

Similar FSGs:

FSG ID	FSG Narrative
G055BY700ND	Subirrigated soils do not have restrictive levels of salinity.
G055BY900ND	Wet soils do not have restrictive levels of salinity.

Inventory Data References

Agriculture Handbook 296-Land Resource Regions and Major Land Resource Areas
Natural Resources Conservation Service (NRCS) National Water and Climate Center data
USDA Plant Hardiness Zone maps
National Soil Survey Information System (NASIS) for soil surveys in North Dakota and South Dakota counties in MLRA 55B
North Dakota and South Dakota NRCS Field Office Technical Guide
NRCS National Range and Pasture Handbook
Various Agricultural Research Service, Cooperative Extension Service, and NRCS research trials for plant adaptation and production.

State Correlation

This site has been correlated with the following states: North Dakota and South Dakota

Forage Suitability Group Approval

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